

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
OFFICE OF NEW REACTORS
WASHINGTON, DC 20555-0001

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NRC INFORMATION NOTICE 2009-19: HOSTILE ACTION-BASED EMERGENCY
PREPAREDNESS DRILLS

ADDRESSEES

All holders of operating licenses or construction permits for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel. All licensees and potential applicants for new fuel cycle facilities under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 70, "Domestic Licensing of Special Nuclear Material." All current and potential applicants for an early site permit, combined license, or standard design certification for a nuclear power plant under the provisions of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice (IN) to provide a summary of the NRC staff's observations of hostile action-based emergency preparedness (EP) drills at power reactor licensees over the previous 3 years. The NRC expects recipients to review the information for applicability to their facilities and to consider actions, as appropriate, to incorporate lessons learned from these unique drills. Suggestions contained in this IN are not NRC requirements; therefore, no specific action or written response is required.

DESCRIPTION OF CIRCUMSTANCES

This IN provides summary information related to hostile action drills that licensees conducted using the guidelines in Nuclear Energy Institute (NEI) 06-04, "Conducting a Hostile Action-Based Emergency Response Drill," Revision 1, dated October 30, 2007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML073100460). Hostile action scenarios are initiated by hostile or terrorist actions that lead to simulated plant damage, which is a primary difference from traditional scenarios. These scenarios require a coordinated Federal, State, and local response to mitigate the event while simultaneously addressing the security situation. NRC observations were generally made in coordination with NEI and the Federal Emergency Management Agency but were not part of any formal evaluation or inspection process. The following summary of NRC staff observations of hostile action drills provides generic information on key challenges, lessons learned, and good practices.

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Scenario Development

- (1) Licensees' engagement of offsite response organizations (OROs) early in the scenario development process provided the opportunity to define and discuss the unique challenges posed by a hostile action event. Specifically, early engagement facilitated discussion of ORO response onsite and licensee coordination with the ORO's incident command structure. Licensees that had an understanding of how OROs would respond to their site under the National Incident Management System/Incident Command System and that clearly worked with their OROs to identify extent of play and scenario elements had greater success in effectively demonstrating the required functional demonstrations outlined in NEI 06-04 during the conduct of their hostile action drills. Incorporation of offsite responder capabilities into the scenario development led to fewer discrepancies between the site's (and drill controllers') expectations and the reality of players' actions.
- (2) Use of lessons learned from previous hostile action drills was an effective tool in planning, scenario development, and outreach to OROs. This helped to address the unique challenges associated with these scenarios and resulted in scenarios that more effectively demonstrate the capabilities and response to such an event. A current listing of hostile action drill lessons learned, identified by licensees in coordination with OROs, is available on the NEI members' Web site (<http://www.nei.org/members>) and the U.S. Department of Homeland Security Lessons Learned Information Sharing Web site (<https://www.llis.gov>).
- (3) For aircraft threat scenarios, licensees should ensure that the scenario reflects realistic timelines and notification procedures. This should preclude negative training and should convey more realistic implementation of response actions. Licensees should continue consulting Regulatory Guide 1.214, "Response Strategies for Potential Aircraft Threats," dated July 2009 (ADAMS Accession No. ML091740646). The staff also noted that it was advantageous for licensees to engage the NRC staff during scenario development and when possible have staff support initial communications between the licensee control room and the NRC Headquarters Operations Officer.
- (4) While NEI 06-04 scenarios must present conditions leading to core damage with a potential radiological release, the guidance does allow for a success path to prevent a radiological release if drill players take appropriate and timely mitigative actions. A good practice was scenarios that clearly reflect and communicate the potential for a radiological release, regardless of ultimate scenario outcomes. These types of scenarios necessitate decisions about the possible relocation of the Incident Command Post and the need for additional protective measures or equipment for ORO resources onsite.
- (5) NRC Bulletin 2005-02, "Emergency Preparedness and Response Actions for Security-Based Events," dated July 18, 2005 (ADAMS Accession No. ML051740058) addressed the establishment of an alternate facility for the assembly of licensee emergency response organization (ERO) personnel. NEI 06-04 identifies activation of this alternate facility as dependent on the scenario. The initial conditions of some licensee scenarios identify that the drill commences during nonworking hours or weekends to allow for the staffing of the alternate facility. The NRC staff has identified this as a good practice for

evaluating the effectiveness of facility utilization as outlined in NRC Bulletin 2005-02. While this is a good practice for demonstrating the ability to staff alternate facilities, it does preclude demonstration of the coordination that would be required if ERO personnel were onsite at the initiation of the event. Scenario developers should consider which demonstration best fits the needs of their drill when determining initial conditions.

Predrill Tabletop

- (1) NEI 06-04 provides guidance on conducting a predrill tabletop. Conducting tabletops is a good practice for providing key licensee ERO personnel and OROs with opportunities to review and discuss their respective roles, priorities, and response actions during a hostile action event. In particular, the tabletops permitted diverse organizations to gain an understanding of each other's immediate priorities and concerns during a hostile action event. The NRC staff identified the following specific good practices that led to a successful tabletop:
 - Tabletops were most effective when they were well planned, facilitated by experienced personnel, included all key OROs, and exercised the interfaces among facilities (e.g., Incident Command Post, Technical Support Center, Joint Information Center, etc.) and their liaison personnel.
 - Tabletops were most instructive when they highlighted how stresses on the various players during a hostile action scenario were different from those of traditional EP drills. Tabletops are most valuable when used in a constructive, continuous learning culture with a focus on scenario and drill improvement.
 - Tabletops have the most positive impact when licensees allotted sufficient time between the tabletop and the actual drill to allow incorporation of lessons learned before conducting the drill.
- (2) A good practice was licensees inviting offsite responders, specifically local law enforcement agencies (LLEAs), to observe control room simulator activities in response to a postulated hostile action scenario during licensed operator training and to walk down plant areas to gain familiarity with the layout of the site and a better understanding of the physical and industrial aspects of the facility. NRC staff discussions with offsite responders revealed that these activities provided important insights to ORO personnel and fostered good coordination between licensees and OROs.

Integrated Response

- (1) Unlike a typical radiological EP exercise, a key objective of NEI 06-04 hostile action scenarios is to require offsite support and licensee coordination with offsite responders to mitigate the events onsite. This coordination should occur via the Incident Commander. The following good practices involving this coordination were identified:
 - The identification and designation of capable and experienced liaisons from the licensee to the Incident Commander for key plant disciplines (i.e., security,

operations, health physics) and early discussions with OROs on how licensee liaisons would be integrated into Incident Command operations;

- The training of licensee liaisons and other appropriate ERO personnel by their cognizant OROs on basic National Incident Management System/Incident Command System (NIMS/ICS) concepts and terminology to facilitate better liaison integration into Incident Command Post operations;
- The identification and availability (staging) of appropriate communications equipment to support liaison functions; and
- The prestaging of user aids (e.g., site maps) to support the liaison briefing of Incident Command personnel and to display significant plant information.

(2) Although the prestaging of ORO personnel and equipment may be necessary to ensure their availability because of the short duration of the drill, good practices identified to minimize the impact of prestaging were:

- The use of actual communication methods, rather than inject messages, to notify and communicate with OROs;
- The timed integration of responders to simulate delays in response (i.e., 10–15 minutes equals 1 hour of actual response) to allow for the effective use of a “time compression” while ensuring a realistic demonstration of response capabilities;
- Strict segregation of prestaged elements from active drill players and communications until their introduction into the scenario at the appropriate time; and
- The transition of the responsibilities of the Incident Commander based on the scenario and the arrival of various response organizations.

(3) Negative training may occur by locating the Incident Command Post to support drill accessibility vice realistically reflecting the expected location based on an actual hostile action event. This may have masked challenges to logistics, communications, and security or by precluding the need for important discussions (e.g., how to respond when an Incident Command Post is located within an area that must be evacuated). The use of real-world staging areas and Incident Command Post locations was a good practice that helped to effectively train response personnel and verify the adequacy of locations to support these functions.

(4) A good practice was the staffing of key interface positions at the Incident Command Post and emergency operations center to facilitate communication between the two types of facilities and to ensure that each was informed of the other’s actions and decisions in a timely fashion. NEI 06-04 guidance does not require the staffing of State and local emergency operations centers. However, actions directed by the Incident Commander,

such as road closures, evacuation of the public located near the site, and augmentation of resources, could have a significant impact on decisionmaking at the respective emergency operations centers.

Coordination with Security and Law Enforcement

- (1) NEI 06-04 provides guidance to facilitate a functional demonstration of the ability of the ERO to coordinate in-plant and onsite response actions with security and the offsite Incident Command. Hostile Action drills are not intended to require the use of an actual adversary force or demonstrate the tactical ability of site security and LLEA responders to neutralize a postulated adversary or regain control of occupied areas. Hostile actions drills are intended to create a scenario in which the site is simulated to be in an unsecured status following an initial attack. The following were identified with this aspect of hostile action drills:
- A good practice was the use of scenarios that provided for discussion among control room staff, site security, and the Incident Commander to address appropriate strategies for securing or allowing access to plant areas in support of initial mitigative actions (e.g., fire suppression, assessment and repair activities, the staffing of onsite emergency facilities, and the relocation of personnel to offsite locations) while the site remained unsecured and in a threat environment.
 - Negative training could occur from use of a scenario time jump or declaration of the site as being “all clear” of adversaries, which preempts the demonstration of this criterion. Scenarios that provide for an “all clear” message also do not consider that threats to site personnel and responders may still exist (e.g., unidentified adversaries, unexploded ordnance, etc.) or that all or parts of the site would be controlled as a crime scene by the Federal Bureau of Investigation or LLEAs. Some drills, while their scenarios did not provide an explicit “all clear,” were allowed to deteriorate into effective “all clear” situations due to lack of controller sensitivity and timely injects to reinforce that the possibility of physical threats still existed.
 - A good practice was the actual staffing of an exercise security supervisor and security lieutenant position at the central alarm station and secondary alarm station to realistically demonstrate the timing and content of communications and the use of applicable site procedures. The staffing of these positions, rather than their simulation by a control cell, improved coordination with the control room, Incident Command, and responding law enforcement.
 - A good practice included the use of control cells to mimic the actions and communications of security officers in the field with the central alarm station and secondary alarm station and the use of photographs and other reference materials to more accurately reflect indications available to security officers in the central alarm station or secondary alarm station.

Coordination of Public Information

The coordination of public information during a hostile action event provides challenges because of the potential sensitivity and availability of information.

- A good practice identified as addressing these challenges was licensee engagement of LLEA and the Federal Bureau of Investigation before the hostile action drill to clarify the intended roles and responsibilities in presenting information to the public. Specifically, this dealt with the sensitivities that LLEA and the Federal Bureau of Investigation would most likely concern themselves with, and how these additional entities would integrate into current processes for public information dissemination.
- A good practice was also the use of separate tabletop between the licensee and respective agency public information officers to define specific communication protocols.

Communications

Communications were routinely a challenge to the conduct of hostile action drills. For most licensees, the need for the plant to communicate with the Incident Command, whether through its own liaisons or otherwise, was a new concept. The hostile action drill scenarios were some licensees' first introduction to response using principles of NIMS/ICS. The task of conveying threat information rapidly to plant employees and doing so continually over the course of several hours using plant page announcements was also relatively new. Some sites made protective action announcements to plant personnel very rapidly, while some delayed more than fifteen minutes. The most successful hostile action drills addressed these communication obstacles early, either in the scenario development or at the tabletop, by answering the questions: (1) "Who do I need to communicate with?" and (2) "How am I going to do it in this situation?" The NRC staff observed the following common challenges:

- Lack of compatible communications equipment between site personnel and offsite responders required them to trade radios with one another at the scene in order to communicate directly. The security situations created by the scenarios may have precluded these trades.
- Radios did not work because of the lack of sufficient repeaters, terrain between the site property and Incident Command Post location, or weather conditions.
- Cellular phones did not receive a signal because of signal dead areas around the remote location of the Incident Command Post or site property.
- Cellular phone batteries did not have sufficient duration, and replacement batteries were not readily available.
- There were not enough telephone land lines available at the Incident Command Post location to accommodate all parties.

Some licensees addressed many of these challenges during their planning and scenario development, but nearly all hostile action drills encountered some form of unanticipated communication challenge.

A good practice was the deployment and use of designated ORO communications vehicles during drills to provide and validate communications interoperability and to provide training to responders. Further information on how some licensees have improved their communications is located in IN 2007-12, "Tactical Communications Interoperability between Nuclear Power Reactor Licensees and First Responders," dated March 15, 2007 (ADAMS Accession No. ML070710233).

A good practice was that some licensees tested their alternate means of communication (e.g., simulating a loss of cellular phone service) at some point well into the drill. Whether the licensee simulated the loss of service as being the result of hostile action or the result of overwhelming traffic in response to the event, it prompted players to think about how they would continue with their response to an actual hostile action.

BACKGROUND

The following documents are related NRC generic communications:

- NRC Bulletin 2005-02 requests licensees to provide information to the NRC on actions that they have taken or plan to take to address how current EP drill and exercise programs prepare or evaluate responders for security-based events commensurate with established EP standards.
- Regulatory Issue Summary (RIS) 2006-12, "Endorsement of Nuclear Energy Institute Guidance, 'Enhancement to Emergency Preparedness Programs for Hostile Actions,'" dated July 19, 2006 (ADAMS Accession No. ML061530290), endorses an NEI white paper issued on May 2005 and revised on November 18, 2005 (ADAMS Accession No. ML053290326), that proposes a phased approach to incorporating a hostile action scenario as part of the existing biennial exercise cycle in which each licensee would conduct a hostile action drill within a 3-year period as a voluntary, unevaluated initiative.
- RIS 2008-08, "Endorsement of Revision 1 to Nuclear Energy Institute Guidance Document NEI 06-04, 'Conducting a Hostile Action-Based Emergency Response Drill,'" dated March 19, 2008 (ADAMS Accession No. ML080110116), endorses, with noted clarifications, NEI 06-04, Revision 1, for use during the voluntary industry initiative.

DISCUSSION

The current regulations at 10 CFR 50.47(b) and Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," do not explicitly require licensees to incorporate a hostile action scenario as part of periodic EP drills and exercises. Bulletin 2005-02 describes

the NRC staff position on conducting a hostile action drill. RIS 2008-08 endorses NEI 06-04, Revision 1, as an acceptable methodology for use in developing and conducting a hostile action drill as part of the industry initiative in response to the potential program enhancements discussed in NRC Bulletin 2005-02. This IN does not contain specific solutions to the wide range of current challenges that a hostile action scenario presents or to the coordination challenges between licensees and Federal, State, and local first responders. This IN does not endorse specific tools, scenarios, methods, or equipment that licensees may use to enhance their response to a hostile action event.

CONTACT

This IN requires no specific action or written response. Please direct any questions about this matter to the technical contacts listed below or to the appropriate Office of Nuclear Reactor Regulation project manager.

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Note: NRC generic communications may be found on the NRC public Web site, <http://www.nrc.gov>, under Electronic Reading Room/Document Collections.

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